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We claim:

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1. A method for detecting predisposition to high altitude pulmonary edema (HAPE), said method comprising the steps of:

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- (a) selecting study subjects by monitoring high altitude pulmonary edema associated symptoms,

- (b) extracting genomic DNA from leukocytes by conventional methods from the study subjects,

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- (c) amplifying Intron 7 of the human iNOS gene of SEQ ID No.1 by designing and synthesizing Forward and Reverse oligonucleotide primers of SEQ ID No. 2 and SEQ ID No. 3, respectively,

- (d) identifying computationally the Novel Single Nucleotide Polymorphism (SNP) by comparing with the already existing sequence of human iNOS gene,

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- (e) screening the high altitude native population (HA natives), low lander natives (HAPE controls) and low lander HAPE patients for the novel single nucleotide polymorphism, using above said primers of SEQ ID No. 2 (Forward Primer) and SEQ ID 3 (Reverse Primer),

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- (f) computing the frequencies of AA, AG and GG genotypes in the populations of step (d) for establishing the association of the genotypes with high altitude pulmonary edema, and

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- (g) predicting and statistically analyzing differences in the distribution of the allelic variants (AA, AG and GG genotypes) in the populations and wherein GG genotype at 19480 position are at low risk to high altitude pulmonary edema and AA genotype at 19480 position are at high risk to of the high altitude pulmonary edema.

2. A method as claimed in claim 1 wherein, the oligonucleotide primers capable for amplification of Intron 7 of human iNOS gene are selected from group

- 5 (a) 5' CAG CGG AGT GAT GGC AAG CAC GAC 3' (SEQ ID No.2), which
is a forward primer, and
- (b) 5' GAT GCA CAG CTG GGG AAC AAG ACG 3' (SEQ ID No.3), which
is a reverse primer
- 10 3. A method as claimed in claim 3 wherein, the oligonucleotide primers contain one
or more polymorphic sites selected group comprising of
- (a) 5' CAG CGG AGT GAT GGC AAG CAC GAC 3' (SEQ ID No.2), which
is a forward primer, and
- 15 (b) 5' GAT GCA CAG CTG GGG AAC AAG ACG 3' (SEQ ID No.3), which
is a reverse primer.
4. A method as claimed in claim 1 wherein, the allelic variants of iNOS gene have
AA, AG and GG genotypes
- 20 5. A diagnostic kit for the detection of SNP genotypes having predisposition to high
altitude pulmonary edema (HAPE) said kit comprising of primers and probes:
- (a) 5' CAG CGG AGT GAT GGC AAG CAC GAC 3' (SEQ ID No.2), which
is a forward primer
- 25 (b) 5' GAT GCA CAG CTG GGG AAC AAG ACG 3' (SEQ ID No.3), which
is a reverse primer
6. A pair of primers suitable for amplification of iNOS gene region containing one or
more polymorphic sites, said primers include
- 30 (a) 5' CAG CGG AGT GAT GGC AAG CAC GAC 3' (SEQ ID No.2), which
is a forward primer
- (b) SEQ ID 3: 5' GAT GCA CAG CTG GGG AAC AAG ACG 3' (SEQ ID
No.3), which is a reverse primer
- 35 7. The nucleic acid vectors containing the allelic variants of the iNOS gene.